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INTRODUCTION TO SOCIOLOGY. V.

PART III. GENERAL STRUCTURE OF SOCIETIES.

CHAPTER V. AGGREGATES.—*Continued.*

SEC. IV. DISTRIBUTION OF PLANTS.

ALPHONSE DE CANDOLLE in his analytic botanical geography admirably presents the static and also the dynamic laws of the distribution of plants over the surface of the globe. A rapid glance at the most essential laws relative to vegetable organisms will prepare us naturally for this positive conception of a philosophy of the social functions—a philosophy which forms the object of this fundamental part of the static at present under discussion.

The distribution of plants from the first is in connection with the several geological epochs. The existing distribution is in connection with the vegetables of former periods. Hence there is a double static correlation of the past with the present. In general, the distribution of vegetable species depends, first, upon the constitution of the different parts of the surface of the globe; secondly, upon the exposure of the vegetables to the action of the sun and light; thirdly, upon heat; fourthly upon humidity.

The plant is a function of the soil and climate. Below 0° vegetation is arrested, and also beyond a certain degree of heat. The distribution of plants, however, cannot be determined by the average isothermal lines. It depends upon the amount of heat useful for their growth, varying according to the periods of vegetation, character of soils, etc.

Each species of plants upon the globe, as remarked by Humboldt, has its limit, which it is not able to cross; and Schaw has counted upon the earth more than twenty botanic regions, of which each is the domain of a group of plants altogether distinct, so that, if these groups should become fossils, the geologists would have difficulty in relating them to the same period.

Each species occupies a region the limits of which are fixed by natural obstacles, such as the sea, deserts, and mountains, or by climatic conditions. Plants sometimes surmount these first obstacles, thanks to their natural means of dissemination, or even artificial means, through the intermediation of men, animals, winds, and currents. However, they are not able to overcome the continuous action of adverse climate. The latter remains victorious, and finally establishes the frontier. These facts are important from the point of view of societies in general and of the distribution of the human species. They show the preponderant part exercised by climate upon the most simple organisms relatively to the lesser natural objects. But, on the other hand, the higher organisms have a superior capacity for adaptation and diffusion.

At the north the vegetable species are annually arrested by the cold of winter and the dryness of summer; at the south, by the dryness of summer, or by excessive and too prolonged humidity. The western and eastern limits are less fixed. In Europe the great humidity of the western side and the great dryness of the eastern, combined with the difference which exists between the more uniform maritime temperatures and the excessive continental temperatures, produce some oblique limits peculiar to each species and rarely parallel. The great number of influences that act in different ways upon their distribution causes an extreme variation in the frontier lines of each species.

The mountains present, from the point of view of the vegetable frontiers, some successions analogous to those which one observes from the pole to the equator. Thus the greater part of the species presents two corresponding habitats, one upon the mountains, the other in the plain in southern regions. Their limits in altitude correspond to their limits in surface.

We have already noted what the most general causes of the delimitation of the species are, besides the nature of the earth, the climate and the dryness, or relative humidity, of the several countries. Each species has a zone of habitat of very different surface and configuration. We see that it is the same for the several varieties of the human species, not only by reason of their

original or acquired variations, but by reason also of their state of civilization. In regard to plants, the habitats extending from east to west are found principally among the numerous families of the north and under the mean degrees of latitude. On the contrary, the species whose habitat extends from north to south are found especially in the tropics. The families of the temperate and northern zone more often present the phenomena of habitats of very unequal diameter.

If we generalize these special distributions, we recognize three great lines along which the vegetable species propagate themselves or were formerly propagated: First, the countries around the arctic pole; second, the zone of the Mediterranean, extending westward to the Canaries, the Azores, and Madeira; eastward, to the Caucasus and Persia; third, the great line of the Floridas, or from Texas to Montevideo. To these lines of main distribution one may add those of the mountains of Europe and the empire of Asia, those from California to Chili, and that from India to Senegal. In general, the configuration of the habitats of species appears to belong more to the physical and geographical conditions than to the peculiar nature of these species. This static law will be more strongly affirmed among the animals, and also among men, who form a single species.

The *vegetal stations* are localities uniting conditions peculiar to the fixation and to the development of each species. The environments—that is to say, the indispensable supports to the existence of each plant—form the primary conditions for each station; thus fresh or salt water for the aquatic plants, the soil for the tuberous mushroom, certain vegetable species even for the parasitic plants, and the ordinary atmosphere for the great majority of species. Each one of these stations excludes the totality of the species of other stations. One should notice at once the fundamental distinction which separates, from this point of view, the varieties of the human species from the manifold vegetable species. The human varieties, though having distinct habitats appropriate to their special natures, are far from being as exclusive, and are becoming less and less exclusive, in reference to each other.

One observes two modes of occurrence of the species upon the globe: first, either they abound in one locality, the individuals being grouped near each other, and forming the *social species*; or else, secondly, they predominate in a whole country; then one calls them *frequents* or scattered. The agglomeration of the individuals of the same species belongs to the constitution of the species itself and to the conditions of each local station.

There are some plants which injure very much their neighbors: (*a*) by the rapidity of their growth (willow and other white wood); (*b*) by the length of their stems (Gramineæ and perennial cypress); (*c*) by the shade of their foliage (beech, fir). These are anti-social toward each other. Other species have an extraordinary abundance of seed, which the wind is not able easily to disperse, or which germinate rapidly and continuously (spinach, mercurialis, wild poppy). Finally certain plants are provided with means of multiplication very favorable for subdivisions or ramifications (*Ranunculus aquaticus*, strawberry plants). Their constitution in each case renders them naturally social.

As to the conditions of each local station, the presence of matter favorable to the vegetation of a certain species ought to multiply it; and, on the contrary, the absence of such other matter necessary to the life of other species ought to exclude the latter (Leguminosæ in the calcareous soils, briar in the sterile places, nivale plants on the summit of mountains). The climate, on the contrary, has no influence upon the sociality of plants. A species remains social up to the limit where it is able to live. At the north there are some forests of a certain species up to the geographic limit of the species itself. Going from the center of France toward the south one sees, following one another, the social species of this zone in a state of decided agglomeration (cistus, turpentine trees, lavender).

In general, the more there are in a country of different species which are able to dispute the territory over each station, the less there are of the agglomerated species. Thus in equatorial countries, the vegetation being more rich in species than in the northern regions, there are fewer social species. Contrary to this, the uniformity of the human species is favorable to sociality.

The commonness or rarity of a species in a country is due to the constitution of each species and to exterior influences. Species are scarcely ever common in a country in proximity to their geographic limit. The individuals are more congested toward the center of the habitat. In the present human divisions the frontier districts are more thinly populated.

Calculation has shown that the average area of species is all the smaller as the class to which they belong has a more perfect organization. This consideration has its importance for sociology. The perfection of the organization is one of the principal factors in the extension of human societies. According to the above law, the cryptogams have the most extensive area; annual plants have a more extensive area than bi-annual; next come perennial plants; then shrubs and bushes; and, lastly, the most restricted area is that of trees. The average area of planerogamic plants appears to be the greater as the duration of their life is shorter.

Among the *secondary conditions* it is necessary to reckon the consistence of the soil, the degree of humidity, the abundance of light, etc. There result some stations equally well defined—rocks, sand, marsh, and forests. Rarely can the same species live in two of the stations, at least in the same climate.

As to the *tertiary conditions*, they result from special and numerous modifications which react upon the precedent stations. Thus forests may have deciduous or persistent leaves. The more a station is habitually cold or humid, the more considerable is the proportion of the common species. These causes, in reality, become the predominant factors, which oppose themselves to the variations of the local causes. In this manner is explained the uniform life of northern populations or of those of zones principally maritime, even among the most complex civilizations; with a character, however, less exclusive, as is shown in the industrial development of certain maritime centers.

In dry and warm regions the special and local causes, on the contrary, resume their importance; differences are more considerable between the stations, and the vegetation is less uniform. "It is necessary," says A. Maury, "that in a warm region the same station be very vast, as that of Sahara in Africa and the

Pampas of South America, in order that the uniformity may appear." This uniformity in the same conditions appears to us in a striking manner in the structure and life of human populations.

One other static vegetable law is that the average area of species is the greater as their average height is less. Thus the domain of mosses and lichens is excessively extended. We know that civilizations little advanced, and uniform, can occupy immense spaces, as in Africa, and in America during the Indian period.

It seems, however, that there is no correlation between the human static and the vegetable law according to which the average area of the species of a single family diminishes in proportion as one travels from the arctic pole to the southern extremities of continents—a law which is pretty applicable to the general average area of the species.

The regions farthest separated from others by seas or deserts are, in general, those which offer most to the special species; for example, the Cape of Good Hope and Australia. We have noted the same law in connection with our observations concerning the influence of general geography and orography upon the formation of races and nationalities.

Among the phanerogamic species, whose area is, however, the greatest by reason of their perfect organization, none extends itself over the entire surface of the globe; none, notably, is found directly under the equator (at least in the plains), and at the opposite extremities of the continents, towards the two poles. In fact, the same mass of physical environment, through its extent and its natural variations, opposes an obstacle in such a way that the vegetable line forms a single and uniform empire. The sea itself constitutes a peculiar botanic region, where, besides extensive and powerful kingdoms, there are in the small islands most distant from other lands some very small specific areas, some very minute principalities.

Outside of these limits, more or less special, the plant kingdom has some general impassable limits. It does not extend above 5,000 meters in the Cordilleras, 2,700 in the Alps and,

1,000 in Iceland. At sea-level the limits are reached near the temperature of 75° C.

So long as the conditions of the localities do not change, the same species continue from year to year, barring the intervention of man and of domestic animals. However, one may observe some spontaneous phenomena of rotation and alteration. Thus, some species, at first abundant and exclusive, become rare and give place to others. For example, in a prairie the Gramineæ give place to the Leguminosæ; forests of oak or of beech replace each other without the intervention of man, etc.

Plants also naturally form certain classes. These individual aggregates of the same species are determined, on the one hand, by the structure of the species itself; on the other, by the conditions of each station. Some plants are in continual war with their neighbors on account of their roots, their height, their foliage, or their excessive propagation. Sometimes, if the battle is permanent, the co-operation is permanent also. The tall forests as well as the feeble Gramineæ conserve and develop themselves especially as masses and not as individuals. Furthermore, even isolated plants, in spite of their excellence of individual constitution, have their existence bound up with the fixity of their habitat. The social solidarity has for indestructible foundation the solidarity of everything that lives in the physical environment.

The distribution of cultivated plants obeys the same structural laws. They are domestic species, and each of them has its frontier. The cereals, properly speaking, fulfil their functions only on condition of being annuals; otherwise they would yield no harvest. But they are annuals only if cultivated outside of the tropical zone, unless in regions quite elevated, so that the cold may cause the stubble to die every year, or unless they become perennial like grass and propagate by sprouts without producing either grain or clusters. This example shows once again in a striking manner the constant static relation which exists between all organic structure, its environment, and its dynamic function.

Barley, oats, and potatoes cannot be cultivated in Europe

beyond the line which passes Finmark, the mountainous districts of Scandinavia, the islands of Faroe and Shetland; that is to say, these plants have a frontier which rises in certain points up to 70° north latitude and redescends in Scotland to 57° and even in Ireland to 52° . Rye does not go beyond 65° north and descends to 48° . It is scattered in the greater part of Europe north of the Alps. Wheat, ordinarily as barley, oats, and rye of central Asia, is arrested at 48° or 57° north latitude and ceases to be cultivated in the intertropical regions of Africa and America; already in the south of Egypt it is replaced by millet, and we see it reappear naturally near 23° central latitude. The warm countries are the habitat of corn and rice. The latter extends little beyond 40° north latitude, and in Brazil it does not cross 30° .

The cereals necessarily have some limits in altitude as well as in latitude. On the Himalaya rice ceases at 4,000 meters; barley and oats are arrested slightly above 4,000 meters; in America, corn at 2,000 and the cereals at 3,000 meters. In Peru and in Mexico the potato is cultivated up to 3,500 meters above sea-level.

This distribution of plants upon the surface of the globe, as we shall see later, interferes in the same manner with the structures of human societies as the geographic formation of our planet, the differentiation of climate, orography and hydrography, and the distribution of minerals; and it explains in part some secondary variations. We have seen that the distribution of minerals occurs in connection with the geologic strata. The latter are in particular superficially connected with the vegetation. Edible products, natural or not, are, on their part, connected with the elementary static, and thence with the several grades of civilization the structure and limits of which they unite in forming.

The distribution of cultures is only in part effected by man. It depends upon the natural distribution of plant life in general, and this depends upon the geologic and climatic environment. Civilization, in its turn, in each of its stages is subordinated to these partly stable and partly variable inorganic and organic con-

ditions. In proportion as we study, we pass from inorganic to vital phenomena, and especially to social phenomena. We ascertain that the growing complexity of phenomena follows a course parallel to that of their modifiability. We cannot at all modify the astronomic structure. We can modify very slightly the geographic and climatic structure of our globe. Climates, continents, and seas have relatively immovable limits. Some plants and animals cross these limits with difficulty, while man transforms the rivers, seas, and oceans into highways of communication. He pierces mountains, traverses deserts, and, what is more, he continually modifies and ameliorates himself. However, let it not be forgotten that all of his variations and all of his progress are limited at each moment of time and in each fraction of space by constant static laws; similarly, everywhere and always, each part of every social structure is necessarily in correlation with all the others and in the service of the *ensemble*. In societies, as among individuals and in nature generally, every movement implies a constant equilibration. "Order" and "progress" are two terms which express two inseparable aspects of the same law—the law of constant solidarity of every constituent part of social bodies.

SECTION V. DISTRIBUTION OF ANIMALS.

A *relatively* constant fixity is the law of geographic, climatic, geologic, and mineral structure. This aspect becomes less predominant in the distribution of the vegetable zones and species. Here already, besides the influences of the external environment, other natural causes intervene, of which selection is the principal one, tending to adapt vegetable organisms to special conditions by differentiating them into varieties and species.

The physio-psychic structure of animals introduces in this static complexus new modifying elements, resulting principally from the superior motility derived from their more or less highly developed muscular and intellectual constitution in connection with their nervous system. Muscles and nerves are organs of a more special and more complete life-relation. So the study of laws which involve the distribution of animals upon the surface of the earth is the natural transition to the search after those

which are connected with the distribution of the human species. The study of the distribution of the human species, in its turn, is, properly speaking, the basis of the philosophy of social and political frontiers.

The present state of the distribution of animals has its point of departure in the previous geologic and geographic transformations. The distribution of animals corresponds always to these two conditions, as the flora and fauna themselves, at the expense of which certain animals subsist.

As explained by Professor A. Lamcere in his lectures upon transformism, the geographic distribution of organisms is proof of their transformism. This principle had been clearly established by Charles Darwin, and also by Wallace (*Island Life*). This distribution is, indeed, dependent upon exterior conditions; upon the geological constitution of the soil which causes variation of the flora, and therefore of the fauna: it depends upon climate, natural barriers (deserts, mountain ranges, seas, etc.), and upon the interior state of the planet. Hence the large islands contain the same animals as the neighboring continent, for the reason that the lands were formerly joined together. The geographic distribution of animals testifies also in favor of natural selection, that is to say, the survival of the fittest. For instance, the little islands rising from the ocean include only some types that have been able to transport themselves thither, as birds, bats, insects; or to be thither transported, as lizards, rats, etc. The insects are for the most part apteral. Those which had through variation lost their wings had, indeed, a greater chance of survival, because not so liable to be swept by the wind into the sea. These interpretations should not be lost sight of when we come to consider the distribution of the varieties of the human species.

Although in some respects the means of locomotion of animals are superior to those of plants, it seems that the animal forms and their habitats have varied very little in fifty centuries among the most ancient historic civilizations, Egypt, Babylon, Persia, India, China, and Greece, if one may judge from the remnants and documents of these antique civilizations. This

remarkable stability, which extends partly to the social world, belongs evidently to the strict static connection which binds together the physical, botanical, zoölogical, and sociological phenomena. This interpretation is the natural and positive explanation of the origin of species.

The formation of species is the outcome of the general phenomena of the variability of organized beings. This variability is dependent upon the influence of the environment and accessorially upon modifications accidentally introduced in their structure. Heredity fixes the variations and transmits them to the descendants. Every cell in dividing distributes among the daughter-cells some essential characteristics of the mother-cell, including those characteristics which are the result of variation. Then ensues the *struggle for existence*, which proceeds by the elimination of the less fit, in the relative sense of the word. This struggle is manifested

by a frightful destruction of organisms, and principally young organisms not yet arrived at the age when they are able to reproduce themselves. It is caused, first, by the limitation of subsistence upon the surface of the globe; secondly, by accidents, inclemency, cataclysms, diseases, parasites, etc., which assail living beings. It is not a battle open to the individuals of a single species, one against the other; but, indeed, it is a blind fury to procure the subsistence furnished often by other species, and in this case it presents an *active* character; or it is in a resistance to inclemency, etc., and in that case presents a *passive* character. The struggle for existence is, above all, the struggle against death.¹

This natural selection has as its result the survival of the fittest, repeated from generation to generation, and ending in the creation of new species. Darwin and Haeckel agree, especially in regard to the most perfect organisms, plants, or animals, among which cellular differentiation has reached a certain degree, that each animal and vegetable species was produced by natural selection only once, at a single moment of time, and at a single point in space. It is the center of creation of a species. The multiplicity and complexity of the conditions for these higher forms could with difficulty, according to Darwin and Haeckel, occur more than once.

¹ A. LAMCERE.

Positive sociology is not directly interested in the adoption of this hypothesis of special centers of creation. Even supposing it incorrect, sociology can satisfy itself with the statement, conformable alike to the champions and adversaries of this doctrine, according to which from the beginning there has been a natural tendency for each species to multiply, then to come out of its one or several centers of creation, which had become too narrow, and to adapt itself to the conditions, at first poorly, and afterwards with more and more facility. These eccentric displacements are active or passive, voluntary or involuntary. They are involuntary when they are occasioned by displacements of other natural bodies.¹

The more easily a species displaces itself, the more rapidly it scatters itself. So it is with winged articulate and vertebrate animals. Hence the great uniformity of their structure, in spite of the enormous diversity of their superficial exterior forms. This law finds its most complete application in the human species, the most mobile of all, and whose peculiar uniformity dominates all of the special varieties.

Adjoining centers never contain radically different faunas. The transition is by imperceptible degrees from one fauna to the other. These transitions, however, are less in man than in other species. The identical species of animals are found over vast continents, and present, from one region to the other, only some local differences or varieties, due to special influences. Thus each region from the north to the south of Africa has, so to speak, its special variety of antelope. These graduated differentiations are observed equally, or still more, in the distribution of the human species, whose extreme types are connected, even in their geographical distribution, by quite regular transitions.

Throughout, where there exists a certain congeniality of habitat, not necessarily perfect congeniality, races and varieties of the same species are found. Some conditions of habitat serve to limit them. For instance, in Borneo and Sumatra, according to the naturalist Schlegel, the orang-outang is always found in analogous localities. It never frequents different localities of

¹ DARWIN, *The Origin of Species*, chaps. xi, xii.

the same neighborhood, although there is no obstacle or physical barrier to prevent. Certain species common to North America are found under the same latitude in South America. On the contrary, the animals of two countries relatively connected, those of the western slope of the Cordilleras and those of Brazil, differ specifically.

The influence of climate and of habitat is generally limited to a more or less complete development of certain members and to a diversity of colors. In other respects this influence operates differently according to the kind or species, each having a power of conservation of type more or less pronounced. But there are for certain determined types impassable barriers, and within the limits assigned by nature this type submits to slow modifications, so that one is not able to determine whether these varieties have come out of the same stock or are products different from each other.¹

To summarize, the exterior geographical, climatic, geological, and elementary environment, in connection with the internal structure of animal species, determines and defines their habitat. The latter extends itself the more easily as the species is the more mobile or becomes more mobile by natural selection and progressive adaptation to the environment. Therefore the fundamental character of the population of the great empires of fauna and the uniformity of structure are disguised only in their exterior appearance. For the human species, which is the most scattered animal species of all, the essential uniformity is altered only by some very limited and, above all, superficial variations which do not destroy the common type.

Let us pass now from these static laws of the distribution of fauna in general, to the observation of the limits of some one of the particular kingdoms. The crustaceans have their peculiar system of distribution. The distribution of their habitats is principally conditioned upon the temperature of water. According to Dana, they occupy five principal regions: first, the western region, embracing the American shores of the Atlantic and Pacific Oceans; second, the European region, from Cape Horn

¹ A. MAURY, *La terre et l'homme*.

to Shetland; third, the eastern region, comprising the eastern coast of Africa, the shores of southeastern Asia, the islands of the Indies and of the Pacific Ocean; fourth, the Arctic region, from Kamtskatka to Norway; fifth, the Antarctic zone, comprising Terre del Fuego, the Falkland Islands, and New Zealand.

Reptiles, crocodiles, ophidians, lizards, and even some batracians are the most sedentary of all the animals. They replace migration by hibernation and lethargy. Their domain *par excellence* is therefore the intertropical centers. The number of species, and of individuals of each species, diminishes in proportion as one advances toward the poles. The batracians are those which are found nearest the poles. The domain of reptiles, formerly very extended, limits itself with the differentiation of climates.

The distribution of birds is as much deprived of definite limitations as that of reptiles is circumscribed. One has yet to conjecture, since the invention of balloons and the experiments in air navigation, the enormous influence, not only economic, but moral and political, which aerial locomotion would exercise upon the social frontiers of the human species. This is a fine example of the constant correspondence between the internal and external social structure and the structure of frontiers. The powerful means of locomotion of birds naturally explains, for the greater part of them, why their geographical distribution changes only with the seasons. This influence of seasons is, however, not a simple and absolute cause. It is related to one other fundamental and primary condition—the necessity of providing nourishment, of which the means are facilitated or prevented, according to seasons. These alimentary conditions, as well as variations of temperature, compel migration, as is shown in the experience of birds. “Wherever the little animals disappear that furnish the birds with nourishment; wherever the plant forms cease to grow whose grains and buds are their ordinary subsistence, there the birds disappear.”

The atmospheric variations of North America being more pronounced than in our climates, the migratory species are there more numerous. Some migrate in couples, other species in

little companies, and many in flocks of several thousand, with a chief and often in a definite order. The structure of these aggregates of animals relates evidently not only to the action of climates, winds, etc., but also to the abundance or scarcity of the alimentary resources at their disposal, to the exterior dangers with which they are menaced, to the instincts, and to the habits born of these repeated experiences.

There are cosmopolitan species such as the common crow which endures equally heat and cold, from the Cape of Good Hope to Greenland, and from the Gulf of Mexico to Hudson's Bay. One meets it wherever it finds its normal food. Those of the North, like the human species of the same countries, are distinguished from those of the South only by an extreme voracity.

There are, however, some sedentary species of birds, particularly in certain regions. Such are those which through selection and adaptation have in a constant manner acquired the faculty of equilibrating their peculiar constitution and the necessity of the conservation of the species with the geographical, climatic, and alimentary environment. They never migrate because they have no interest in displacing themselves.

The distribution of the terrestrial mammals is naturally more fixed. It is also historically more recent. The natural classification of the several groups of fossils shows us, indeed, the succession of animal forms in the geological strata according to the order of their relative superiority: first, fish; second, amphibians; third, reptiles; fourth, birds; fifth, mammals. This historic classification is confirmed by the parallelism of the appearance of the same forms with the law of succession of the states through which the embryos of the superior types pass.

In area, geographically limited as it is today, the arctic fauna differs from the temperate fauna, the latter from the tropical, and even the northern temperate fauna from that of the southern temperate zone. Furthermore, in this latter, one finds two regions—that of central Africa and that of South America. These are dissimilar in their mammals as well as in their birds, their reptiles, their mollusks, and their insects. Europe itself has some distinct mamiferous regions.

The northern region, whose limit is not far south of the isothermal zero line, has its peculiar mammals—the polar fox, the reindeer, and the white bear. The country of the bear is less extensive than that of the fox; that of the fox, less than that of the reindeer; the latter reaches to the interior of the northern forests, where the polar fox does not penetrate.

The region of middle Europe is bounded on the north by the frontier of the reindeer; on the west, by the ocean; on the south, by the Pyrenees, the Cevennes, the Alps, the Balkans, and the Caucasus; east of the Ural, as we have said, there is only an imperfect frontier between Europe and Asia. Asia and the vast plains to the southwest of Siberia continue from the steppes of European Russia.

The Mediterranean slope, so remarkable for its multiform geographic structure, is equally remarkable for the great number of small regions each having its peculiar animals. Is it not also remarkable that in the archipelago, in Greece, in Sicily, in Italy, in the Island of Sardinia, in the south of Gaul, in the retreats in the midst of mountains, so difficult to cross for man as well as for other mammals, are settled a crowd of little local civilizations, municipal districts, whose influence is felt even today? In regard to mammals, Australia is totally different from South America and Africa.

Dr. Richardson has ascertained the existence of a large kingdom of maritime fauna in the Pacific Ocean, occupying a zone of 42° north and south of the equator. This kingdom comprises the whole of those waters which border Australia, New Zealand, the Malay archipelago, China, and Japan. Its population consists of almost the same varieties. At the frontier of this vast region appear other varieties peculiar to polar countries and which are confounded in certain points with the tropical species. This maritime realm is not without analogy with the great terrestrial domain which it borders. They are equally enormous in their area and their population. It is necessary also to keep in mind this mixture of varieties operating at the frontiers in general, of the several zones of fauna, and which corresponds to an analogous phenomenon in the frontier zones of political societies.

As the organs of social transportation in becoming international extend the limits of societies, so similarly the existence of marine currents tends to expand the boundaries of this vast domain. Certain species of the Indian Ocean are thus driven as far as Japan. From the Malay archipelago the fauna of the Polynesian seas presses its advance guards and its colonies as far as the Red Sea and the eastern coast of Africa. So throughout one zone, which measures not less than three-fourths the circumference of the globe and which embraces 60° of latitude, are found in general the same fish and the same mollusks. "The Cape of Good Hope forms a great barrier at which this gigantic empire terminates."¹

The Atlantic is less homogeneous in its fauna than the Pacific. Between the fauna of the coasts of America and that of Africa there are some important differences. These are caused by the absence of islands and the great depth of the waters. Naturally, then, beyond 44° north latitude in the narrowest part some common species increase, such as salmon and codfish.

Maury appropriately adds:

In the water as in the air the necessity of finding nourishment and of assuring their reproduction forces some animals to long peregrinations. Most birds and fish are more or less migratory. Few species are absolutely confined to the same district; following the seasons or atmospheric variations, they change their residence. Among fish some travel singly and others migrate in pairs—mackerel, sardines, codfish, and herrings; and so long as the geographical and climatic conditions are constant, their itineracy is constant also. Although confined to the polar sea, the several species of seals are not scattered indifferently upon the surface of the frozen water. Each has its particular district more or less extended.

Fish, of course, rise less in altitude than insects, birds, and mammals.

The same geographic, climatic, alimentary, and genesial conditions have exercised, and continue to exercise, a considerable influence upon the peregrinations and habitats of primitive human societies, and even upon modern societies. They continue to act in the present as in the past, although in a less simple and less general fashion, in proportion as societies adapt themselves

¹ A. MAURY.

better to the more and more special external necessities; and in accommodating themselves they even modify the earth to their advantage. This superior power of adaptation of the human species involves at once its greater relative fixity and superior adaptation in temporarily or permanently displacing itself. Thus the highest civilizations are at the same time the most sedentary and the most mobile—more mobile, in fact, in that which concerns their constituent units than primitive societies, which are especially altogether sedentary or altogether nomadic; but even when nomadic they are sedentary in the sense that they transfer themselves only into simple and analogous regions. The advanced civilization enjoys in the highest degree a mobile equilibrium through an apparent reaction, which is, in fact, a superior combination of the double power of fixation and displacement. It is sometimes in the laws of the ordinary animal life that we discover the foundation of the most complex laws of the distribution of the human species, from its origin up to the most advanced stages. In them we also comprehend that the structure and life of societies, through the intermediation of the flora and fauna, are connected with the great laws of universal mechanics. That which is especially important to remember, from the point of view of the mammals, is that each species has, it is true, its area of habitation, more or less determined by geography, climate, and the mode and quantity of elimination in relation to its peculiar structure, but that, aside from the great climatic mutations of which we have spoken, some of the habitats of the mammals are relatively fixed. In others, although there are sundry zoölogical regions, these regions, as natural history shows, are bound together by some common characters. This community and this fundamental zoölogical solidarity join with the unity and solidarity of the physical world, recognized by us previously up to the orographical and hydrographical structure which produces the most impassable obstacles and natural divisions.

We are now prepared to examine the same problems with respect to the human species—a species which is becoming more

and more interdependent, not only in reference to its members, but in reference to all of its natural relationships.

CHAPTER VI.

SECTION I. THEORIES RELATING TO THE DISTRIBUTION OF THE HUMAN SPECIES.

The human species is in constant equilibrium with itself and with its environment. This equilibrium may be considered as relatively progressive, stationary, or even retrogressive, according as the adaptation of the species to the environment harmonizes with the more and more special and complex conditions, or stands still in established relations, or abandons its conquests, returning to simpler and more general relations. In fact, an unchangeable, stationary state no more exists than absolute mutation. Movement is inseparable from every living structure. Every society recedes or progresses, maintaining at each step a static condition which corresponds with its dynamic evolution.

The relations of societies to their environments were not at first comprehended in this manner, namely, as constituting solely relations of this kind; that is to say, constituting solely static and dynamic relations. Christian philosophy, up to recent times impregnated with the metaphysical spirit, has by turns attributed either to the physical environment—*i. e.*, to the world outside of man—or to man himself, considered as independent of the world, an excessive and absolute value in the search for the causes of social forms. It is notably thus that the metaphysical philosophy of history divides into two great schools. One, primarily mesological, sees in the influence of environment the cause of social phenomena; the other, especially anthropological, introduces into specific natures some different human varieties and, particularly into their own race, some structural and dynamic variations which show us each step in the history of societies.

Rochell, in his *Introduction to the Philosophy of History* (Göttingen, 1878), and after him M. L. Gumplowicz, in his *Struggle of the Races*, divides the history of the systematic conceptions of societies and of humanity into three phases, partly successive and partly concomitant. The first, chiefly theological, would be represented

by the sacred writings of India, China, Persia, by the Bible, the Koran, and the gospels. The second would be distinctly rational, idealistic, or realistic, according as it proclaims that the absolute free will of man has complete power over the object. Almost all of the Greek and Roman historians and philosophers belong to this school. The third phase, finally, would be that of natural conceptions, where the philosophy of history "seeks the natural laws which direct this particular part of nature, known as humanity, into inflexibly prescribed paths in virtue of an eternal necessity."

This classification is only partly exact and complete, though in its main lines conformable to the three stages of Comte. It differs in that it does not sufficiently distinguish the several stages of religious forms, the transition forms between religion and metaphysics, the several conceptions of the latter, nor its evolution toward the purely scientific and positive philosophy. The fundamental conception of this latter is even completely neglected, namely, the negation of the absolute, which is the bond and the common fault of the first three phases. It equally loses the view, and seems to deny the possibility, that societies may interfere, within certain limits, with their particular structure and with their particular movements, which would presuppose no "eternal and inflexible" laws, but simply the determinism and the relativity of natural laws in the constitution and activity of societies. The natural laws, indeed, are only abstract and general relations. They do not direct and do not determine humanity as exterior forces. The social forces in their reciprocal relations are other than the properties of the social matter. Some expressions used by Gumplowicz are vestiges of a metaphysical and anthropomorphic language. Only the positive laws, which are the works of man, although equally subjected to social determinism, practically rule and govern in certain historic movements, through physical and moral constraint, the relations of men in civil and political societies. Finally, this classification gives no place to the conception that is really new, and which is my own, according to which, in sociology, the physical and organic environment is made one with humanity, in such manner that every society, from the most simple up to the universal

society, is a superior combination of the constituent elements of the whole of nature. Men and their environments can differ, change, but societies are always inseparable from their environments. Sociological monism is the most advanced phase of the philosophy of history. The doctrine ought to formulate itself naturally when, as today, the unity of structure and life is imposed upon the collective conscience by its worldly nature.

The philosophy of history, the first form of sociology, began as a legitimate and natural reaction against the spiritual and anthropomorphic conceptions of religions, and notably against the Græco-Roman polytheism, during, and even before, its monotheistic evolution. Its progress coincides with that of the natural sciences, though the latter had not fully comprehended man, and the societies in particular were always interpreted as distinct from the environment which they dominate or through which they are dominated.

Hippocrates of Cos, the great doctor of the fifth century before our era, and Herodotus, his contemporary, contributed to the European world the bases of social mesology. According to the principle of Hippocrates,

Everything that the earth produces is comformable to the earth itself. [That is why] elevated countries produce beings of high stature and low countries beings of little height. In regions where the seasons are not extreme all of the men resemble each other, but where the differences between the seasons are considerable one observes great differences in the forms of the individuals. . . . In Scythia the seasons undergo only slight variations and depart little from uniformity, and hence arise the resemblances that the Scythians bear to each other. . . . In Europe the vicissitudes of seasons are considerable and frequent, the heat severe, the winters rigorous, and the rains abundant; there intervene prolonged drought and winds, which multiply and diversify the atmospheric variations. It is natural that these influences should make themselves felt among the people, and that the conformation of the embryo should vary and not be the same for each person, in summer and winter, and during the rainy and dry seasons. It is on this account, speaking for myself, that Europeans differ more among themselves than the Scythians in form, and that in each city one observes among the inhabitants such irregularities of stature.^x

^x *Traité des eaux, des airs et des lieux* (edited and translated by DE LITTRÉ), Vol. II, pp. 53 ff.

Theodectes of Phaselis, cited by Strabo, said the same: "The sun colors the head of men with a somber hue of soot and curls their hair by its burning heat."

The theory of Hippocrates, apart from the richness but incorrectness of observations, contained in germ all the development which later, through Lamarck, Étienne Geoffroy, Saint Hilaire, Goethe, and their school, ripened into the doctrine of biological transformism, through the influence of the environment and through hereditary transmission of variations produced by the external environment. This doctrine of transmission by heredity of acquired characteristics has only in these later years come to be seriously questioned, notably by A. Weismann in his essays upon *Heredity and Natural Selection*, etc.

Herodotus (484-405), with a scientific training less extensive and less thorough than that of Hippocrates, though still strongly imbued with the theological beliefs of his epoch, is subject in his historic works to the trend of the conceptions of the naturalists of his time. With the Bible and all antiquity, he believed in moral heredity, but this heredity of good and evil was divinely ordained. The influence of environment appeared to him always as a natural factor. "The most delightful countries produce ordinarily only weak and effeminate men, and likewise the soil which bears the most beautiful fruits produces men of indolence."¹

On the contrary, the social conception of Plato (430-357) is idealistic, subjective, and anthropocentric. To him the natural character of the individual determines the nature of the state:

The character and customs of a state are in each of the individuals who compose it. It is from man that they are passed into society. It is ridiculous to pretend that this impassioned energy which one attributes to the people of the North as the Thracians and the Scythians, that this taste for instruction which one can believe natural to the inhabitants of our country, and that this love of gain which characterizes the Phœnicians and Egyptians, are not in the individual before being in the state.²

Thus is affirmed in the essays upon social science which the civilization of Greece has bequeathed to us this absolute antagonism, which in sequel continued during a long time, and still

¹ Book IX.

² *Republic*, Book IV.

divides the metaphysical schools into two very distinct groups: the first, seeking the cause of social forms and movements in the outer environment; the second, in the constitution and faculties of man; both accordingly deducing their respective social conceptions. Each of these two schools invokes, however, some more or less scientific observations, but science is yet only the auxiliary of these formulas.

Aristotle (384-322) rebelled against the idealistic subjectivism of Plato. He restored to the environment its influence upon societies:

People who inhabit cold climates, as Europe, are in general full of courage, but they are certainly inferior in intelligence and in industry. If they retain their liberty, it is at the price of anarchy, and they have never been able to conquer their neighbors. In Asia, on the contrary, people have more intelligence, and aptitude for the arts, but they lack heart, and they remain under the yoke of a perpetual slavery. The Greek race, which is topographically intermediate, unites all of the qualities of the other two. It possesses at once intelligence and courage. It is able at the same time to protect its independence and to form very good governments. If it were united in a single state, it would be capable of conquering the world.¹

It is necessary to note, outside of the almost absolute contradiction given to this mesologic theory by history, the tendency to the abolition of political frontiers through the rudimentary force of conquest. Alexander will be the executor of the theories of his master.

It would be an exaggeration to appose in an absolute fashion the idealistic socialism of Plato, based upon human nature, to the realism of Aristotle, otherwise equally socialistic, as we are too apt to forget. Indeed, according to the illustrious peripatetician, "it is evident that in the order of nature the city exists before each individual."² He conceives of society as a superior differentiated organism: "Society is a giant having hands, feet, and innumerable senses, and a mind and an intelligence in proportion."³ By that Aristotle attaches himself to the contemporary biological sociology.

In the *Laws* Plato subordinates more his absolute ideal to

¹ *Politics*, Book IV, chap. vi, p. 1.

² Book I, chap. i, p. 12.

³ Book IV.

reality. He recognizes the influence of environment, and notably that of the alimentary environment.

Here men are of a *bizarre* and fiery character by reason of the winds of every kind and the excessive heat which prevail in the country that they inhabit. Elsewhere it is the superabundance of water which produces the same effects. In still other places it is the aliments furnished by the soil—aliments which affect not only the body, strengthening or enfeebling it, but also the mind, and producing upon it the same consequences.¹

The two schools are not necessarily exclusive. They come together at certain points, but they have this in common with all those who have succeeded them, that neither has reached the conception of society as a combination of the inorganic and organic laws, which in itself carries this double character of environment. The contradictions themselves, when one theory or the other necessarily fails, are the best proof that sociologically man and the environment are only one. With the Stoics the idea of equality and of universal fraternity, parallel to the abolition in fact of the frontiers of small Græco-Roman cities and the constitution of the Græco-Roman world, is substituted for the conception of the antique city. At the same moment appears for the first time the metaphysical notion of the absolute free will of man. From the Stoics this subjective conception passed into the writings of Philo Judæus. The virtuous man was called free and the vicious man a slave, without taking account of the social and real situation of the citizen or the slave. Social science, or rather its metaphysics, tends to become psychic, moral, and juridic.

The more limits there are among men and among societies, the more frontiers. According to Pseudo-Plutarch,² Zeno in his *Treatise upon Government* proposes to show us that we do not belong to such and such a tribe or city, separated from each other by a definite right and by exclusive laws, but that we ought to see in all men fellow-citizens, as if all belonged to the same tribe in the same city. Marcus Aurelius said: "As Antoninus, I have Rome for country; as man, the world." Epictetus, speaking of slaves, wrote: "You should remember

¹ *Laws*, Book V.

² *Fortune of Alexander*, Book I.

that they are by nature our fellow-men, our brothers, the descendants of God."

Thus the conception of a natural and universal human law was introduced in the Roman world at the same time that its interior limits were being broken in order to reach out over the most assimilated parts of the three known continents.

The monogenism of the human species was then conceived as an ideal and of divine origin. The parallel evolution of the doctrine with the historic evolution of society was not even caught sight of; the unity of the human species had its origin in the unity of the God of the universe. The idealistic and supernatural conception formulated itself in Christianity through the divorce of the spiritual and temporal—a divorce which the Catholic Middle Ages extended to the two corresponding powers. The idea is separated from the fact. All men are equal and brothers in God. Among them there are no inequalities, no barriers before the Creator; but said Jesus: "My kingdom is not of this world;" "Render to Cæsar that which is Cæsar's and to God that which is God's." That is to say, pay to Cæsar the tribute, symbol of political submission. The Christian equality is extra-mundane, neither political nor social. It is, however, voluntarily possible here below, if the great consent to be little.

Let us remark, however, that henceforth the abolition of frontiers among classes and societies is conceived of as one of the essential aspects of equality. It was, indeed, one of the historic functions of frontiers to maintain among men and peoples at least an external equilibrium effected by restrictions and prohibitions, *i. e.*, by exterior constraint, awaiting their internal social equilibrium.

We know that the separation and relative limits of the spiritual and temporal, were the great problems of the Middle Ages. The separation still forms a part of the heavy debt of our heritage, and its dualism will finally resolve itself only into the monistic conception of society—a conception already prepared by the psycho-physiological monism which is slowly but inevitably being substituted for this corresponding dualism of mind and body.

Naturally primitive Christianity, antagonistic to the social and political frontiers, was equally antagonistic to the exclusive and private property which is one of the forms of sovereignty and of inequality in and among societies. Paul, Justin, Tertullian, Ambrose, and Chrysostom are communists as well as cosmopolitans.

Said Paul :

All those who are converted to the faith put their property, their labor, and their life in common. All have only one heart, only one soul. They form altogether only a single body. No one possesses anything of his own, but all things are in common. This is why there are no poor among them. All those who have property sell it and place the price at the disposition of the apostles, who then distribute it to each according to his needs.¹

In a single body there are several members, but all of the members have not the same office ; similarly all believers, though several, have nevertheless only a single body in Christ Jesus, being all reciprocally members one of another.²

However, in spreading itself throughout the world, Christianity insensibly accommodates itself to circumstances. For Clement of Alexandria it was not necessary to renounce private property, but only to despise it : "When it is commanded of us to renounce all of our wealth and sell all of our goods, it is necessary to understand these words as meaning to discard the passions and bad sentiments of our minds." So the economic revolution equally implied in the evangelistic doctrine is no longer relegated to second place, but abandoned. Hence naturally, with the private demesniai conception exclusive and limited, the idea of social and political sovereignty and inequality makes its reappearance in theory. Augustine founded the right of property upon the right of sovereignty; the latter is the creature of human right, to dispute the first is to place the second in doubt. Logical to the end, he justifies slavery. In this path the idea travels across the Middle Ages up to the end of the seventeenth century—Thomas Aquinas and Bossuet. During all this period a hierarchy of princes has its base in a hierarchy of proprietors, and both evolve in a manner parallel to the spiritual hierarchy, which is also represented among its leaders by sovereign proprietors.

¹ Acts 2 : 44 ; 4 : 32.

² 1 Cor. 12 : 4 f.

Altogether—and here is the important point of our study—the transformations of doctrines relating to the nature of societies, and especially to their internal and external limits and frontiers, are always in correlation with the constitution of property and of social classes, and with the enfeeblement and abolition, or the restoration and reinforcement, of the intersocial frontiers. States whose frontiers are more or less rigid are only vaster forms of private proprietary sovereignty.

With the scholastics, and notably with Thomas Aquinas (1227–74), the metaphysical conception makes its return into the domain of the social theory. The doctrines of Aristotle again begin to bear upon the Platonic idealism and the Christian mysticism. Then sovereignty and property cease, at least in part, to be recognized as absolute. The law, organ of reason, interferes with their institution and with their exercise. This movement is accentuated through the influence of the jurisconsults.

The doctrines of free will and of necessity are mutually checked, and against the debauchery of reasoning and of the empiricism of the Jesuits and of Machiavelli (1469–1527) positive science regains its foothold upon the question of the influence of environment and of races upon the distribution, structure, and evolution of the human species. In the *Six Books of the Republic*, by J. Bodin (1577), this illustrious precursor of Montesquieu brought the problem of the influence of environment upon human nature and upon social forms to the observation of relations which establish themselves naturally between the surrounding physical nature and the population. In chap. i of Book V, pp. 663 ff.,¹ he occupies himself particularly “with the principles which are necessary in accommodating the republican form to the diversity of men and to the means of knowing the nature of peoples.” He studied the influence of the environment, and especially of climate, upon the physical and moral nature, and upon the political forms of men in societies. “It is necessary,” said he, “to accommodate [we always say today “to adapt”] the form of the political action to the nature of the

¹ Pays edition, Paris, 1580.

localities, and the human regulations to the natural laws," and furthermore "to the nature of the subjects." ' Bodin also took account of the alimentary necessities, and he pointed out the important influences of mountains upon civilizations. What he connected directly with positive political science is that he recognized the possibility for societies to interfere with their particular organization and to modify it to their advantage. He is not a fatalist, and he is not a simple partisan rationalist of free will, but he is a determinist. He shows, indeed, with an imposing certainty and a wealth of erudition equal to that of Montesquieu, "how much the food, the laws, and the customs, are able to change life." He compares, for example, from this point of view, Germany in the time of Tacitus and in his own epoch. With all of the historians and political theorists of antiquity he also proclaims that "the inequality of fortunes—poverty and wealth—are the two calamities of the republic." But what he did not see is that the internal barriers which separate men in each society have their analogue in the political frontiers between the societies. Both manifest the existence of inequalities and the temporary necessity of substituting this equilibration, based upon force and constraint, for one altogether broader and higher, based upon justice.

More than a century after Bodin, Montesquieu (1689–1755) devoted five books of *The Spirit of Laws* to the same problems. He also defined natural laws, and distinguished them from positive laws. With an erudition scientifically more methodic and better chosen than that of his predecessor, he shows the connection of laws with the nature of climate and with the relative sobriety of peoples. He sets forth how, among other things, laws of civil and domestic slavery are connected with climate, and he combats the error, still in vogue today, that polygamy exists only among the wealthy classes. According to him, poor and rich civilizations are equally favorable to this state of promiscuity, which we find, indeed, in vigor in very opposite stages of civilization, although without different forms. Political servitude itself, according to him, is connected with climate. In reality, Montesquieu attributed to climate an exaggerated influ-

ence, almost absolute, which afterward more accurate observations discredited. In Book XVIII he studies laws in their connection with the nature of the soil, but without attaching to this latter the same importance as to the preceding factor. One can reproach him in that, after having quite well defined the natural laws, he almost completely neglected them for the positive laws. It is necessary, however, to render him this justice, that he did not hesitate to affirm repeatedly that positive laws ought to react against the baneful tendencies of certain natural laws, such as deficient hygiene and the peculiar indolence, according to him, of the orientals.

With Bodin and Montesquieu, representing the mesologic school, appears again the theory of natural frontiers, conformably to the constant parallelism between institutions, facts, and doctrines already previously indicated. The French monarchy was an absolute monarchy, a great domain shut in; and the colonies even were exploited as dependencies, or as farms of this domain.

The climatic school, actually a transitory stage between the metaphysical rationalism and positivism, continued to the end of the eighteenth century, first with Herder, who in his *Ideas upon the History of Humanity* identifies God and nature, and later with Friederich Schlegel. Finally, with the great historian Buckle, who founded his philosophy of history altogether upon climate and the constitution of the soil, and of the alimentary conditions, the climatic theory comes to be more and more connected with sociology.

The school arising directly from Herder divided itself into two branches: one theological, with Bunsen (*God in History*); the other strictly naturalistic, with Schelling. The latter considered the world as an animated organism, developing according to determined laws. The idea was still certainly metaphysical. but it was an admirable prelude to the purely scientific movement which went to transform the natural science after the latter half of the nineteenth century.

In opposition to this chiefly naturalistic current, Hegel denied the influence of climate in these terms: "One never comes to me to speak of the climate of Greece since the Turks have come

to dwell where formerly the Greeks dwelt. Climate should no longer be a question; I hope I shall not be annoyed by this question any more." He denied with reason the absolutism of the climate, but what does he put in its place? Another absolute idea—the absolute spirit, which develops successively in history. The thesis, unity, is the spirit of the immobile Orient. The antithesis is the spirit of classic antiquity. It is variety. The synthesis is realized in the Germanic peoples. It was there, however, under its metaphysical form, one of the sources of origin of the evolutionist conceptions. Idealism evolves and develops from Hegel himself. With Kolb, Klemm, Lazarus, and Steinthal, we see it bordering upon a psychology of peoples—upon a collective psychology, which by degrees comes to be founded upon natural and experimental psychology. The latter, on its side, takes at this moment for a basis the study of races. It is from this standpoint, at first equally absolute, that Jodl in *Die Kulturgeschichte, ihre Entwicklung und ihr Problem* (Halle, 1878), denies the influence of climate.

In the environment and the race there are then two terms of the problem. They are present, though no longer as formerly, by right of elementary units, man and soil or climate, but as masses, as every modern sociological problem. The question still reflects the dualistic and exclusive aspect. From their side, Conrad Hermann¹ and Lotze in his *Mikrokosmos* continue the anti-rationalistic school and end in the organic conception of societies. This analogy, at first purely formal, between societies and the organisms, assumes with A. Schäffle and Lilienfeld a more and more real character.²

Finally Gumplowicz seeks to put an end to the antagonisms of the system and to the anthropological theory by affirming, under the name of realism, the unity of nature and of mind, and the absence of liberty of the latter. In evoking only the races, he conceives as one, mind and matter, man and his habitat. Falling back into a new mysterious absolute, no longer individual,

¹ *Philosophie der Geschichte*, Leipzig, 1870.

² A. SCHÄFFLE, *Leben des socialen Körpers*, Tübingen; LILIENFELD, *Gedanken für Socialwissenschaft der Zukunft*, Mitau.

but collective, whose enigma becomes more and more indecipherable with the mixture of civilizations, he ends in a fatalism and an immobilism no less redoubtable than that of the physical environment considered as exterior. There is no longer progress. Sociology having for its object only natural groups and not individuals, everything for him centers in the struggle of races. The issue of the combat is always the same. The most powerful ethnical element prevails, since the influence it exercises is always and everywhere civilizing. This group assimilates the production of another. It divides the labor, it favors intellectual culture, and it forms races. And always one of the two civilizations ceases to exist. It disappears before barbarism, which recommences the process, but upon a larger scale, which shows higher collectivities, and better equipment in every respect, from the social and national point of view. And the result of this process? Some groups triumph, affirming that it is progress; others lament, pretending that it is regress and decadence. Surely, it is neither the one nor the other. It is always the same thing.¹

This philosophy, called realistic by Gumplowicz, but better termed subjectivo-collective, is only one of the numerous and rash deductions which sociology has been thought to authorize in harmonizing itself with the theories of Darwin. It is also a pessimistic adaptation—with certain variations, more or less brilliant—of the similar, but much more serious, theory advanced by Gobineau in his remarkable *Essay upon the Inequality of Human Races*, published in 1854. Gobineau denies all influence of climate upon historic development. He makes development depend entirely upon the different mixtures of blood of the races. For him, central civilization is always located where there

lives at a given moment the most purely white group, the most intelligent and the strongest. . . . Should this group, through a concurrence of invincible political circumstances, come to reside at the foot of the polar ices or under the rays of fire of the equator, it would be there only that the intellectual world would exist. It is there that all of the ideas, all of the tendencies, and all of the efforts would never fail to converge, and no natural

¹ *La butte des races*, p. 345 (French translation).

obstacles could prevent the commodities, the most distant products, from reaching the place across seas, rivers, and mountains.

If all of these great theorists, instead of fruitlessly attempting to construct superficial systems, and instead of the expending of enormous ingenuity in formulating them, had worked a little in comparative and elementary statistics, bearing upon economic phenomena and upon their relations to population, they would have ascertained that, without its being the only factor, the physical environment, and particularly the climate, exercises an important influence upon the economic and genesial life, and consequently upon the *ensemble* of societies. Their adversaries would also have ascertained that a certain influence is equally exercised by the anthropological factors. Unfortunately, there is an inevitable tendency in the human mind to consider things upon the surface rather than to resign itself to studying them at the beginning.

In fact at the present time the question is presented to us by the philosophy of history, *i. e.*, by the schools in reality metaphysical, but which attach themselves more directly to positive sociology in the following manner. On the one hand, the mesologic school, properly speaking, accords to the different environments, including the alimentary, a preponderant, if not an absolute, influence upon the distribution and evolution of the human species. On the other hand, the principally anthropological, ethnological, and psychological school attributes this same absolute influence particularly to the races.

It is incontestable that the common tendency in both is to connect themselves more and more with the conclusions of the natural sciences, including biology, psychology, and sociology. The evolution of the several schools, from Hippocrates down to the nineteenth century, can leave no doubt in that regard. Comte and Spencer have only followed the scientific movement in attempting to co-ordinate and complete it through sociology.

The laws of structure and of the development of the human species can never be required in any *a priori* formula. The laws were borrowed from the sciences, most directly in connection with social science, biology, and psychology, not from the most

simple inorganic sciences, whose prior constitution explains the priority of the mesologic doctrines.

The philosophy of limits and of frontiers ought to be solely the generalization of the special laws of limitation, which the several natural sciences offer. We have attempted to take a point of view equally abstract and concrete, for all the orders of phenomena other than those relative to the human species. It remains for us, therefore, to seek in the special sciences, and lastly in social science itself, the natural laws of distribution applicable to humanity.

Here, however, we shall see that there is nothing absolute in the philosophy of limits and frontiers; that its laws are always generalizations from relations not absolutely constant, not absolutely variable, where neither the self, nor the non-self, neither the body nor the mind, neither the race nor the environment, intervenes to the exclusion of the other. We see that they form, on the contrary, a continual equilibrium; that they manifest a static state which accompanies, everywhere and at each moment, the structure and the functioning of all societies. The human species, however, is also an environment, which not only equilibrates with the other exterior environments in the formation of particular societies, but which, considered in its universality, carries its environment in itself, or is carried by this environment, from which it can no more be separated than the tortoise from its carapace or the soul from the body. Similarly, each particular society is one with its so-called environment; the latter forms an integral part: it is a whole; with the difference that the other particular societies are to it relatively exterior, while for humanity in general, according to the profound vision of Spinoza, *all is in all*. We shall see, in a word, that in sociology the fusion and conciliation of the antagonism of the two schools, mesologic and anthropological, has its natural solution in the monism of phenomena and social forces. In sociology, the philosophic solution ought to be analogous to that already brought about in physio-psychology.

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[*To be continued.*]